

NEW SPECIES OF ONAGRANDRENA ASSOCIATED WITH
OENOTHERA IN CALIFORNIA, NEVADA
AND WYOMING

(Hymenoptera: Andrenidae)

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The three species of *Andrena* (subgenus *Onagrandrena*) described below are named at this time in order to permit reference to them in ecological studies to be reported elsewhere.

Andrena* (*Onagrandrena*) *boronensis

Linsley & MacSwain, new species

Female: Integument black; pubescence black. *Head* with clypeus convex, densely punctate, without indication of a median longitudinal smooth line; labrum with apical process as broad as long, apex depresso-emarginate; vertex punctate between ocelli and compound eyes; antennae with first flagellar segment, measured along anterior margin, slightly shorter than second and third combined, flagellar segments, except the first two, reddish-brown. *Mesosoma* with mesoscutum dullish, closely punctate, the punctures mostly less than one diameter apart, interspaces finely reticulate, areas enclosed by reticulations oval, impressed; mesoscutellum more densely punctate than mesoscutum; mesopleura, a little more coarsely, densely punctate than mesoscutum; propodeum coarsely rugoso-punctate, basal enclosure coarsely, more or less regularly and longitudinally rugose; wings very lightly tinted with blackish; legs with scopa of posterior tibiae about as wide as tibia, moderately dense, suberect. *Metasoma* moderately slender, shining, second tergum with most anterior hairs long, predominantly simple, finely punctate, most punctures separated by at least three to five diameters; terga two to four with apical impressed margin shining but distinctly, though finely, sparsely punctate. Length approximately 12 mm., anterior wing 9 mm.

Male: Integument black; pubescence of head long, erect, predominantly yellowish-white, except along sides of face, upper face above antennal insertions, and vertex, which is black, that of clypeus densely plumose; thoracic pubescence long, erect, yellowish-white; pubescence of legs and abdomen black, except on first and second metasomal terga. *Head* with apical process of labrum emarginate, bilobed; antennae with flagellum black, first segment about as long as second. *Mesosoma* with mesoscutum opaque, densely punctate, punctures mostly separated by less than one diameter; mesoscutellum more densely punctate; propodeum sculptured much as in female. *Metasoma* with punctures of second tergum mostly separated by from three to five or more diameters, terga with a distinct impunctate apical margin. Length approximately 10 mm., anterior wing 8 mm.

Holotype female (California Academy of Sciences, Entomology) from BORON, KERN COUNTY, CALIFORNIA, April 3, 1959, at flowers

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of *Oenothera dentata*, 7:03 a.m. (J. W. MacSwain), *allotype male*, same locality and date, at flowers of *Coreopsis bigelovii* between 7:50 and 8:00 a.m. (E. G. Linsley) and 79 *paratypes* (California Insect Survey, University of California, Berkeley), all from the same locality, as follows: Seven males, two females, March 27, 1959 (E. G. Linsley, J. W. MacSwain); two males, eight females (three with pollen) from *Oenothera dentata*, April 2, 1959, between 7:23 and 8:58 a.m. (E. G. Linsley, J. W. MacSwain); two males, nine females (five with pollen) from *Oenothera dentata*, April 3, 1959, between 6:20 and 7:28 a.m. (E. G. Linsley, J. W. MacSwain); 5 males, three females (none with pollen) at flowers of *Coreopsis bigelovii*, April 3, 1959, between 7:50 and 9:00 a.m. (E. G. Linsley, J. W. MacSwain); one female, sunning, on April 2, 1960, at 10:15 a.m. (E. G. Linsley); one male at flowers of *Oenothera clavaeformis clavaeformis*, April 9, 1960, at 5:32 p.m. (E. G. Linsley); twenty-three females (seventeen with pollen) from *Oenothera dentata*, April 10, 1960, between 6:45 and 8:06 a.m. (E. G. and Juanita M. Linsley); one male, ten females (none with pollen) at flowers of *Layia glandulosa* between 8:10 and 8:50 a.m. (E. G. Linsley).

Additional material, not designated paratypic, is represented in early morning collections from *Oenothera dentata* in the following localities from the Mojave Desert or its western edge: San Bernardino County: 7 miles west of Salt Wells, Apple Valley, and Kramer Hills; Los Angeles County: 1 mile west of Little Rock; and Kern County: 6 miles east of Mojave, Red Rock Canyon, and Short Canyon, 6 miles west of Inyokern.

This species belongs to the pale winged group of typical *A. (O.) oenotherae* Timberlake and *A. (O.) rozeni* Linsley and MacSwain. Both sexes differ from *oenotherae* and *rozeni* in the more finely, sparsely punctuate second metasomal tergum, with the punctures mostly separated by from three to five or more diameters, rather than two or three diameters. The male superficially resembles that of *rozeni* but has extensive areas of black pubescence on the vertex, at the antennal bases, and the sides of the face. The three species occur together at several localities but differ ethologically, *rozeni* taking pollen from *Oenothera clavaeformis* in the late afternoon, *boronensis* and *oenotherae* from *Oenothera dentata* in the early morning. However, *boronensis* begins storing pollen a week or more earlier in the season than *oenotherae* and

starts collecting pollen a half hour or more earlier in the morning.

Andrena (Onagrarendra) thorpi

Linsley & MacSwain, new species

Female: Integument black; pubescence black. *Head* with clypeus convex, densely punctate, without indication of a median longitudinal smooth line; labrum with apical process heart-shaped, slightly longer than broad, widening toward the apex which is shallowly notched; vertex punctate between ocelli and compound eyes; antennae with first flagellar segment, measured along anterior margin, slightly shorter than the second and third combined, flagellar segments black. *Mesosoma* with mesoscutum opaque, densely and more or less subcontiguously punctate, interspaces finely reticulate, reticulations sub-circular impressed; mesoscutellum closely punctate; mesopleura a little more coarsely punctate than mesoscutum, punctures contiguous; propodeum coarsely, subcontiguously, reticulate-punctate, basal enclosure coarsely and somewhat regularly, longitudinally, medially rugose, lateral margins not distinctly elevated; wings tinted with blackish; legs with scopa of posterior tibiae slightly wider than tibia, moderately loose and suberect. *Metasoma* moderately slender, shining, second tergum with most anterior hairs long, predominantly plumose, surface moderately coarsely punctured, most punctures separated by from one to three diameters, terga two to four without a broad, impunctate apical band, impressed apical margin densely punctate. Length approximately 13 mm., anterior wing 10 mm.

Holotype female (California Academy of Sciences, Entomology) from 11 MILES NORTH OF WINNEMUCCA, HUMBOLDT COUNTY, NEVADA, June 8, 1961, gathering pollen from *Oenothera deltoides piperi*, 6:55 a.m. (J. W. MacSwain). *Paratypes*: two females collected at 6:48 and 7:27 a.m. respectively (J. W. MacSwain). An additional specimen, collected at 6:34 a.m. (R. W. Thorp), contains three female *Stylops*. This last individual was not taking pollen.

This species belongs to the dark-winged group containing *A. (O.) vespertina* Linsley & MacSwain and *A. (O.) chylismiae* Linsley & McSwain. The female may be distinguished from that of each of these by the apically widened, heart-shaped process of the labrum and the shorter first segment of the antennal flagellum which is not as long as the two following segments together, and the longer, looser, tibial scopa. From *vespertina* it differs further in the subcontiguously punctate mesoscutum, the more coarsely rugose basal enclosure of the propodeum which has poorly developed lateral margins. The propodeal enclosure is more regularly rugose than in *chylismiae* and the abdomen is more slender, but the two appear to be closely related.

Andrena (Onagrandrena) stagei
Linsley & MacSwain, new species

Female: Integument black; pubescence black. *Head* with clypeus convex, densely punctate, without indication of a median longitudinal smooth line; labrum with apical process parallel-sided, a little longer than broad; vertex punctate between ocelli and compound eyes; antennae with first flagellar segment, measured along anterior margin, as long as second and third segments combined, flagellar segments, except the first two, reddish-brown. *Mesosoma* with mesoscutum dullish, finely, closely punctate, punctures separated but mostly less than a diameter apart, interspaces finely reticulate, areas enclosed by reticulations elongate, narrowly impressed; mesoscutellum closely punctate; mesopleura a little more coarsely, densely punctate than mesoscutum; propodeum coarsely, subcontiguously reticulate-punctate, basal enclosure very coarsely, longitudinally, and obliquely rugose, median ridges very prominent, lateral margins not sharply defined; wings tinted with blackish; legs with scopa of posterior tibiae about as wide as tibia, moderately dense. *Metasoma* moderately slender, shining, second tergum with most of the anterior hairs long, predominantly plumose, surface finely punctate, most punctures separated by at least three to five diameters; terga two to four with a moderate impunctate apical band but more than half of the width of impressed margin finely, sparsely punctate. Length approximately 12 mm., anterior wing 9.5 mm.

Holotype female (California Academy of Sciences, Entomology) from LITTLE AMERICA, 22 MILES WEST OF GREEN RIVER, SWEETWATER COUNTY, WYOMING, June 25, 1960, collecting pollen from *Oenothera trichocalyx* at 8:15 a.m. (G. I. Stage). *Paratypes*: two females, same site, collecting pollen at 6:43 and 7:10 a.m.

This species also belongs to the dark-winged group of *A. (O.) vespertina* Linsley & MacSwain, *A. (O.) chylismiae* Linsley & MacSwain, and *A. (O.) thorpi* Linsley & MacSwain. It appears to be most closely related to the first of these, differing primarily in the broader apical process of the labrum and the coarsely, obliquely rugose basal enclosure of the propodeum which also has less well defined lateral margins.

XVI INTERNATIONAL CONGRESS OF ZOOLOGY

The Sixteenth International Congress of Zoology will convene in Washington, D.C., in 1963 at the Sheraton-Park and adjacent Shoreham Hotels. Additional information may be obtained from the National Academy of Sciences, National Research Council, 2101 Constitution Avenue, Washington 25, D.C.